

# WASHINGTON AGRICULTURAL CHEMICAL USAGE CARROTS, PROCESSING August 2003



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## CARROTS, PROCESSING

Results of the 2002 Vegetable Chemical Use Survey are presented in the following tables. The survey was designed to collect data on chemical applications made from the end of the 2001 harvest through completion of the 2002 harvest from a sampling of vegetable growers in Washington. Targeted crops in Washington included asparagus, processing carrots, processing sweet corn, dry onions, and processing green peas. The probability nature of the survey allowed for estimates that are representative of chemical use on all targeted vegetables in the state.

Survey results include estimates of total area treated, number of applications, rates per application and per crop year, and total pounds of chemicals applied. Data are summarized for the active ingredients of pesticides and other chemicals applied. Pesticide data were collected for specific formulations of active ingredients (trade name products) and then converted to active ingredient. Therefore, the estimates

associated with a particular active ingredient may represent applications of several trade name products. Pesticide application rates also reflect partial coverage applications as a result of band, spot, and alternate row spraying techniques.

Herbicides were also widely utilized on carrots for processing acreage. Applications were reported on 90 percent of the surveyed acreage. Linuron was the predominate choice covering 86 percent of the acreage followed by fluazifop-P-butyl with 55 percent, and trifluralin with 39 percent. Insecticides were applied to 64 percent of the acres. Esfenvalerate was used most, being applied to 40 percent of the acres. Fungicides were applied to 77 percent of the acreage. Chlorothalonil was the most utilized, covering 64 percent of the acreage followed by mefenoxam on 19 percent. Nitrogen fertilizer was applied to 71 percent of the four target states. Phosphate was applied to 62 percent of the acreage, and potash was applied to 57 percent of the four states.

### Carrots, Processing: Fertilizer Use Percent of Acres Treated, Major States & Total, 2000 & 2002

| State        | Planted Acreage |               | Percent of Acres Treated 1/ |           |           |           |        |           |
|--------------|-----------------|---------------|-----------------------------|-----------|-----------|-----------|--------|-----------|
|              |                 |               | Nitrogen                    |           | Phosphate |           | Potash |           |
|              | 2000            | 2002          | 2000                        | 2002      | 2000      | 2002      | 2000   | 2002      |
|              | Acres           |               | Percent                     |           |           |           |        |           |
| California   | 5,000           | 2,100         | -                           | 86        | -         | 81        | -      | 25        |
| Michigan 2/  | 1,260           | -             | -                           | -         | -         | -         | -      | -         |
| Texas        | 2,300           | 2,100         | -                           | 98        | -         | 94        | -      | 91        |
| Washington   | 5,300           | 4,700         | -                           | 52        | -         | 30        | -      | 30        |
| Wisconsin    | 4,800           | 4,800         | -                           | 71        | -         | 71        | -      | 84        |
| <b>TOTAL</b> | <b>18,660</b>   | <b>13,700</b> | -                           | <b>71</b> | -         | <b>62</b> | -      | <b>57</b> |

1/ Refers to acres receiving one or more applications of a specific fertilizer in redient. - Fertilizer use was not included in the 2000 Vegetable Chem. Survey. 2/ Michigan was not included in the 2002 Vegetable Chemical Use Survey.

### Carrots, Processing: Agricultural Chemical Application, Washington, 2000 & 2002 1/

| Active Ingredient 2/ | Area Applied 3/ |      | Applications |      | Rate Per Application |      | Rate Per Crop Year |      | Total Applied |      |
|----------------------|-----------------|------|--------------|------|----------------------|------|--------------------|------|---------------|------|
|                      | 2000            | 2002 | 2000         | 2002 | 2000                 | 2002 | 2000               | 2002 | 2000          | 2002 |
|                      | Percent         |      | Number       |      | Percent              |      |                    |      |               |      |
| <b>Herbicides</b>    |                 |      |              |      |                      |      |                    |      |               |      |
| Linuron              | 98              | 96   | 1.7          | 2.0  | 0.56                 | 0.64 | 0.96               | 1.31 | 5.0           | 5.9  |

1/ Planted acres in 2000 and 2002 for Washington were 5,300 acres and 4,700 acres respectively.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2000: Herbicides: Fluazifop-P-butyl, Glyphosate, Paraquat, Sethoxydim, Sulfosate, Trifluralin. Insecticides: Esfenvalerate, Oxamyl, Petroleum distillate. Fungicides: Chlorothalonil, Copper hydroxide, Mefenoxam, Sulfur. Other Chemicals: Chloropicrin, Dichloropropene, Metam-sodium. 2002: Herbicides: Clethodim, Fluazifop-P-butyl, Glyphosate, Paraquat, Sethoxydim, trifluralin. Insecticides: Diazinon, Esfenvalerate, Oxamyl. Fungicides: Chlorothalonil, Mefenoxam, Metalaxyl, Sulfur. Other Chemicals: Dichloropropene, Metam-sodium.

3/ Refers to acres receiving one or more applications of a specific agricultural chemical.

Note: Data may not multiply across due to rounding.

## Carrots, Processing: Pesticide Applications, Total Acreage & Percentage Receiving Applications, Major States & Total, 2000-2002

| State        | Planted Acreage |               | Area Receiving 1/ |           |                 |           |            |           |                 |           |
|--------------|-----------------|---------------|-------------------|-----------|-----------------|-----------|------------|-----------|-----------------|-----------|
|              |                 |               | Herbicides        |           | Insecticides 2/ |           | Fungicides |           | Other Chemicals |           |
|              | 2000            | 2002          | 2000              | 2002      | 2000            | 2002      | 2000       | 2002      | 2000            | 2002      |
|              | Acres           |               | Percent           |           |                 |           |            |           |                 |           |
| California   | 5,000           | 2,100         | 30                | 56        | 15              | 15        | 20         | 42        | **              | 30        |
| Michigan 3/  | 1,260           | -             | 100               | -         | 86              | -         | 100        | -         | **              | -         |
| Texas        | 2,300           | 2,100         | 67                | 87        | 51              | **        | 68         | **        | **              | **        |
| Washington   | 5,300           | 4,700         | 99                | 97        | 42              | **        | 71         | 71        | 73              | **        |
| Wisconsin    | 4,800           | 4,800         | 100               | 99        | 99              | 97        | 95         | 97        | **              | **        |
| <b>TOTAL</b> | <b>18,660</b>   | <b>13,700</b> | <b>77</b>         | <b>90</b> | <b>54</b>       | <b>64</b> | <b>65</b>  | <b>77</b> | <b>26</b>       | <b>35</b> |

\*\* Insufficient reports to publish percent of area receiving.

1/ Refers to acres receiving one or more applications of a specific pesticide class.

2/ Total applied excludes Bt's (*Bacillus thuringiensis*). Quantities are not available because amounts of active ingredients are not comparable between products.

3/ Michigan was not included in the 2002 Vegetable Chem. Survey.

## Carrots, Processing: Agricultural Chemical Applications, Major States, 2000-2002 1/

| Active Ingredient 2/   | Area Applied 3/ |      | Applications |      | Rate Per Application |        | Rate Per Crop Year |        | Total Applied |       |
|------------------------|-----------------|------|--------------|------|----------------------|--------|--------------------|--------|---------------|-------|
|                        | 2000            | 2002 | 2000         | 2002 | 2000                 | 2002   | 2000               | 2002   | 2000          | 2002  |
| <b>Herbicides</b>      | Percent         |      | Number       |      | Pounds Per Acre      |        |                    |        | 1,000 Pounds  |       |
| Fluazifop-P-butyl      | 37              | 55   | 1.2          | 1.0  | 0.16                 | 0.17   | 0.20               | 0.18   | 1.3           | 1.3   |
| Linuron                | 74              | 86   | 2.1          | 2.2  | 0.55                 | 0.60   | 1.19               | 1.33   | 16.5          | 15.8  |
| Metribuzin             | 9               | -    | 1.8          | -    | 0.14                 | -      | 0.25               | -      | 0.4           | -     |
| Sethoxydim             | 3               | 12   | 1.0          | 1.0  | 0.27                 | 0.16   | 0.27               | 0.16   | 0.1           | 0.3   |
| Trifluralin            | 25              | 39   | 1.0          | 1.0  | 0.56                 | 0.53   | 0.58               | 0.56   | 2.7           | 3.0   |
| <b>Insecticides</b>    |                 |      |              |      |                      |        |                    |        |               |       |
| Diazinon               | 3               | 22   | 1.3          | 1.4  | 0.56                 | 1.04   | 0.73               | 1.46   | 0.4           | 4.5   |
| Esfenvalerate          | 44              | 40   | 3.8          | 4.9  | 0.03                 | 0.03   | 0.12               | 0.16   | 0.9           | 0.9   |
| <b>Fungicides</b>      |                 |      |              |      |                      |        |                    |        |               |       |
| Azoxystrobin           | -               | 1    | -            | 1.7  | -                    | 0.17   | -                  | 0.29   | -             | 0.1   |
| Chlorothalonil         | 49              | 64   | 3.3          | 2.9  | 1.03                 | 1.15   | 3.48               | 3.39   | 31.7          | 29.5  |
| Copper hydroxide       | 18              | -    | 2.5          | -    | 0.52                 | -      | 1.34               | -      | 4.5           | -     |
| Mefenoxam              | 19              | 19   | 1.0          | 1.2  | 0.14                 | 0.20   | 0.15               | 0.25   | 0.5           | 0.7   |
| Sulfur                 | -               | 16   | -            | 1.0  | -                    | 5.81   | -                  | 5.98   | -             | 13.1  |
| <b>Other Chemicals</b> |                 |      |              |      |                      |        |                    |        |               |       |
| Dichloropropene        | 17              | 29   | 1.0          | 1.0  | 117.81               | 85.92  | 117.84             | 88.94  | 383.7         | 355.7 |
| Metam-sodium           | 12              | 22   | 1.0          | 1.1  | 134.08               | 134.36 | 144.00             | 147.58 | 312.6         | 445.4 |

1/ Planted acres for the five major states in 2000 were 18,660. Planted acres for the four major states in 2002 were 13,700. States included in 2000 were CA, MI, TX, WA, and WI, and states included in 2002 were CA, TX, WA, & WI.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2000: Herbicides: Glyphosate, Paraquat, Sulfosate. Insecticides: Carbaryl, Cyfluthrin, Malathion, Methomyl, Oxamyl, Petroleum distillate. Fungicides: Azoxystrobin, Basic copper sulfate, Benomyl, Fenbuconazole, Iprodione, Mancozeb, Metalaxyl, Sulfur. Other Chemicals: Chloropicrin, Gibberellic acid. 2002: Herbicides: Clethodim, Dimethenamid, Glyphosate, Metribuzin, Paraquat. Insecticides: Mevinphos, Oxamyl. Fungicides: Benomyl, Copper hydroxide, Iprodione, Metalaxyl. Other Chemicals: Chloropicrin.

3/ Refers to acres receiving one or more applications of a specific agricultural chemical. Note: Data may not multiply across due to rounding.